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EXAMINER	
LE, LANA N	
ART UNIT	**PAPER NUMBER**
2685	24

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/400,974	SATO ET AL.	
	Examiner	Art Unit	
	Lana N Le	2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

With respect to the rejection regarding claims 1, 8-11, 14-15 an 33-37 as being unpatentable over Fortune in view of Hayashikura.

Regarding claims 1, 8-11, 14-15 an 33-37, appellant states that Fortune's discussion at col 9, line 29 – col 10, line 21 is directed to only a half wave dipole antenna assumed to have a main and a side lobe. In other words, no other antenna is used except the half wave dipole antenna. Therefore, it is irrelevant whether the reference include specifically a directional antenna or not.. Also, applicant state that the Fortune reference does not teach a directional antenna with a main lobe and a side lobe. However, directional antennae is not stated in the claims. In addition, the examiner refers to the ground of rejection (in the final office action, col 6, lines 52-56) Fortune teaches "different types of antennas can be used" to calculate path losses. Fortune does not explicitly teach a main lobe and a side lobe in an antenna. However, it is notoriously well known in the art that a main lobe and a side lobe is part of a directional antenna (see Electronic Communications Systems by William Stanley, Chapter 11, page 513, copyright 1982).

Also, appellant's arguments relating to the Fortune reference which doesn't have a video signal that avoid ghosting effects, the system's reliability, and redundant paths in claim 1. However, all of these limitations are not stated in the independent claims.

Also, appellant's arguments relating to the invention's indoor application, the Fortune reference also is applicable to indoor uses.

Further, appellant also state that Hayashikura does not disclose a plurality of propagation paths for a millimeter band signal. However, Hayashikura discloses direct and indirect signal paths in a millimeter wave band reception being received depending on whether there is an obstacle present (col 4, lines 55-57).

With regards to claim 12-13, Kagami teaches the additional limitation of each of a plurality of transmitters includes a phase lock oscillator.

Regarding claims 25-26, applicants merely state the combined references still does not disclose the receive antenna having a main and a side lobe.

Regarding claims 2-7, 16, and 17, the reflector claimed is used to reflect propagation signals from the propagation path forming portion which from claim one is at least one indirect path.

Regarding claims 19-22, the claim 19 states "a portion" of the plurality of paths are formed by at least one reflector and does not constitute the direct path as well.

Regarding claims 38-40, again the arguments relies back to claim 1 and these claims are therefore rejected as set forth as claims 1, and wherein the "ghosting effect of the video signal" is not claimed.

Regarding claim 28-29, the claims merely specify the main lobe is to receive the indirect signals wherein as is well known in the art the main lobe is capable of receiving the indirect paths because their sum has more intensity than the direct path.

Regarding claim 27, the added reference, Evans, read on the limitation of a "video signal", applicant argue that the reference does not teach a receiver, however, since Evans teaches a video distribution system, therefore, the system contains both transmitters and receivers and since Fortune inherently discloses a directional antenna having a main and side lobe, the additional limitation of claim 27 does not place the claim in condition for allowance. Therefore, the rejection stands as set forth in the previous office action.

Claim Rejections - 35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-11, 14-23, 28-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fortune et al (US 5,450,615) in view of Hayashikura et al (US 5,654,715).

Regarding claim 1, Fortune et al discloses a signal transmitting/receiving system (fig. 2 and hereafter), comprising:

a stationary transmitter positioned at 210 transmitting a signal wave (fig. 2);

a propagation path forming portion forming at least one indirect propagation path 219 from 210 towards floor 216 and to the receiver 212 for propagation of the RF band signal wave;

a stationary receiver at 212 including a receive antenna 215 capable of receiving simultaneously a plurality of the signal waves from a plurality of propagation paths including a line of sight propagation path 217 and the at least one indirect propagation path 219, and receiving the signal wave from at least one of the plurality of propagation paths (col 5, line 43 – col 6, line 67).

Fortune et al didn't specifically disclose a millimeter band signal transmitting/ receiving system, and a millimeter band propagation signal, transmitting and receiving a millimeter band signal wave and receive antenna having a main lobe and a side lobe. Hayashikura et al discloses a millimeter band signal transmitting/receiving system, and a millimeter band propagation signal transmitting and receiving a millimeter band signal wave (col 2, lines 7-18; col 3, lines 60-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to comprise the indoor, in-building high frequency band signal of Fortune et al with the millimeter band signal in order to fully utilize the continuous spectrum by broadening the intended use of the signal wave for commercial purposes merely by using an alternative frequency in a higher frequency band than usual depending on the available spectrum resource of the

system. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an antenna's main lobe and side lobe in Fortune's receiving antenna, which is intended to receive the direct and indirect paths and to in order to receive the maximum radiation achievable by taking into account a lossy environment in which multipath occurs which reduce the antenna's radiation intensity wherein different types of antennas can be used to calculate path losses. Fortune does not explicitly teach a main lobe and a side lobe in an antenna. However, it is notoriously well known in the art that a main lobe and a side lobe is part of a conventional directional antenna (see Electronic Communications Systems by William Stanley, Chapter 11, page 513, copyright 1982). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a different type of antenna disclosed by Fortune as a directional antenna having a main lobe and side lobe to allow room in the main lobe for the signals having more intense radiation patterns.

Regarding claim 2, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/receiving system according to claim 1, wherein Fortune et al further discloses the propagation path forming portion includes a reflector 216 arranged to reflect the signal wave transmitted from the transmitter and direct the reflected signal wave to the receiver 212 (fig. 2).

Regarding claim 3, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting /receiving system according to claim 2, wherein Fortune et al further discloses the reflector 216 is arranged substantially almost in parallel to a line of sight 217 between the transmitter and the receiver (fig 2).

Regarding claim 4, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/receiving system according to claim 2, wherein Fortune et al further discloses the reflector has thin film including aluminum (col 1, lines 41; col 4, line 38).

Regarding claim 5, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/receiving system according to claim 2, wherein Fortune et al further discloses the reflector has a surface covered by an insulating material (col 1, line 41; col 4, line 38-39).

Regarding claim 6, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/receiving system according to claim 2, wherein Fortune et al further discloses the reflector has a surface covered by a transparent insulating material (col 1, line 41; col 4, lines 38-39).

Regarding claim 7, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/receiving system according to claim 2, wherein Fortune et al further disclose a plurality of the reflectors (col 5, lines 3-5; col 3, lines 33-35) are arranged to form the plurality of propagation paths for propagating the signal waves to the receiver.

Regarding claim 8, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/receiving system according to claim 1, wherein Fortune et al further discloses the receiver always simultaneously receives the plurality of signal waves from the plurality of propagation paths in a normal state (col 3, lines 52-56; fig. 2; col 6, lines 49-52).

Regarding claim 9, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/receiving system according to claim 1, wherein Fortune et al further discloses the receiver and the transmitter are provided inside a house 102, the propagation path includes a structural component 216 defining an internal space of the house 102 and reflecting a signal wave transmitted from the transmitter at 210, and the transmitter is spaced by a prescribed distance from the structural component defining the internal space of the house for transmitting the signal wave with the at a prescribed transmission angle (fig. 2; col 6, lines 6-52).

Regarding claim 10, Fortune et al and Hayashikura et al further disclose the millimeter band signal transmitting/receiving system according to claim 9, wherein Fortune et al further discloses each of the prescribed distance and the prescribed transmission angle is determined depending on a region for propagation of the plurality of signal waves and a positional relationship between the transmitter and the receiver (col 6, line 63-66; col 7, line 8-40).

Regarding claim 11, Fortune et al discloses a signal transmitting/receiving system, comprising a plurality of stationary transmitters (col 6, lines 63-67) which is set up at the transmitter point 210 and a stationary receiver at 212 including a receive antenna 215 (col 5, lines 1-2) at receiver point 212 arranged to simultaneously receive a plurality of signal waves output from the plurality of transmitters (col 6, lines 48-53), the plurality of signal waves transmitted from the plurality of transmitters having a same frequency due to the same path length from the transmitter point 210 (col 6, lines 63-67; col 5, lines 45-53). Fortune et al didn't specifically disclose a millimeter band signal

transmitting/receiving system transmitting and receiving a plurality of millimeter band signal waves, and the receive antenna having a main lobe and a side lobe. Hayashikura et al discloses a millimeter band signal transmitting/receiving system transmitting and receiving a plurality of millimeter band signal waves (col 2, lines 7-18; col 3, lines 60-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the indoor high frequency band of Fortune et al the millimeter band of Hayashikura et al in order to obtain microwave and above frequencies in the same continuous wireless radio frequency spectrum for more practical applications, i.e. local multipoint distribution services in the indoor environment of Fortune et al, which serves as intended commercial use purposes. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an antenna's main lobe and side lobe in Fortune's receiving antenna, which is intended to receive the direct and indirect paths and to in order to receive the maximum radiation achievable by taking into account a lossy environment in which multipath occurs which reduce the antenna's radiation intensity wherein different types of antennas can be used to calculate path losses (col 6, lines 52-56). Fortune does not explicitly teach a main lobe and a side lobe in an antenna. However, it is notoriously well known in the art that a main lobe and a side lobe is part of a conventional directional antenna (see Electronic Communications Systems by William Stanley, Chapter 11, page 513, copyright 1982). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a different type of

antenna disclosed by Fortune as a directional antenna having a main lobe and side lobe to allow room in the main lobe for the signals having more intense radiation patterns.

Regarding claim 14, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/receiving system according to claim 11, wherein Fortune et al further discloses the receiver 212 always simultaneously receives the plurality of signal waves in a normal state (col 6, lines 49-52).

Regarding claim 15, Fortune et al discloses a house 102 (fig. 2) provided with a signal transmitting/receiving system, comprising a structural component 216 defining an internal space and a indoor signal transmitting/receiving system,

wherein the signal transmitting/receiving system includes a stationary transmitter located at 210 transmitting a signal wave; a propagation path forming portion arranged in the structural component for forming at least one indirect propagation path for propagation of the signal wave (col 6, lines 6-7);

a stationary receiver at 212 (fig. 2) simultaneously receiving a plurality of signal waves through a plurality of propagation paths including a line of sight propagation path 217 to and the at least indirect one propagation path 219 (col 5, line 43 – col 6, line 56).

Fortune et al didn't specifically disclose a millimeter band signal transmitting/receiving system, and a transmitter and receiver for transmitting and receiving a millimeter band signal wave and the receive antenna having a main lobe and a side lobe. Hayashikura et al discloses a millimeter band signal transmitting/receiving system, and a transmitter and receiver for transmitting and receiving a millimeter band signal wave (col 2, lines 7-18; col 3, lines 60-67). It would

have been obvious to one of ordinary skill in the art at the time the invention was made to include in the indoor radio frequency propagation signal of Fortune et al the high frequency millimeter band signal in order to fully utilize the continuous radio frequency spectrum to include higher microwave frequencies that has more industrial applicability to practical commercial purposes with the advantage of small output power and measuring of signals for reflective and radiation loss as in Fortune et al (col 6, lines 21-56). Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an antenna's main lobe and side lobe in Fortune's receiving antenna, which is intended to receive the direct and indirect paths and to in order to receive the maximum radiation achievable by taking into account a lossy environment in which multipath occurs which reduce the antenna's radiation intensity wherein different types of antennas can be used to calculate path losses (col 6, lines 52-56). Fortune does not explicitly teach a main lobe and a side lobe in an antenna. However, it is notoriously well known in the art that a main lobe and a side lobe is part of a conventional directional antenna (see Electronic Communications Systems by William Stanley, Chapter 11, page 513, copyright 1982). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a different type of antenna disclosed by Fortune as a directional antenna having a main lobe and side lobe to allow room in the main lobe for the signals having more intense radiation patterns.

Regarding claim 16, Fortune et al and Hayashikura et al discloses a house provided with a millimeter band signal transmitting/receiving system according to claim

15, wherein the propagation path forming portion has a reflector 216 reflecting an output from the transmitter and the reflector is arranged on a surface of the component (fig. 2; col 5, lines 3-35).

Regarding claim 17, Fortune et al and Hayashikura et al disclose a house provided with a millimeter band signal transmitting/receiving system according to claim 15, wherein Fortune et al further discloses the propagation path forming portion has a reflector 216 reflecting an output from the transmitter at transmitter point 210 and the reflector is arranged inside the component (col 5, lines 19-21).

Regarding claim 18, Fortune et al discloses a radio frequency signal transmitting/receiving system, comprising:

at least one stationary transmitter at 210 transmitting an indoor signal through an associated transmit antenna 211 (col 4, line 60-68) along a plurality of propagation paths 217, 219 of the signal formed by the associated transmit antenna including a line of sight propagation path between the associated transmit antenna and a receive antenna 215 (col 6, lines 47-52); a receiver at 212 receiving the signal through the receive antenna (col 5, line 1-2);

wherein, in a normal state when the line of sight propagation path 217 is unobstructed when it does not pass through a surface (col 5, lines 43-48), the receiver receives the signal through each of the plurality of propagation paths including the line of sight propagation path (col 6, lines 62-63; fig. 2).

wherein, in an obstructed state when the line of sight propagation path is obstructed, the receiver receives the signal through each of the plurality of propagation paths except the line of sight propagation path (col 5, lines 57 – col 6, line 7).

Fortune et al didn't specifically disclose a millimeter band transmitting/receiving system; the transmitter transmitting a millimeter band signal; and the receiver receiving a millimeter signal and the receive antenna having a main lobe and a side lobe. Hayashikura et al discloses a millimeter band transmitting/receiving system; a transmitter transmitting a millimeter band signal; and a receiver receiving a reflected millimeter signal (col 3, lines 55-67; col 2, lines 7-18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the indoor radio frequency propagation signal of Fortune et al the high frequency millimeter band signal in order to fully utilize the continuous radio frequency spectrum to include higher microwave frequencies that has more industrial applicability to practical commercial purposes with the advantage of small output power and measuring of signals for reflective and radiation loss as in Fortune et al (col 6, lines 52-56). Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an antenna's main lobe and side lobe in Fortune's receiving antenna, wherein different types of antennas can be used to calculate path losses (col 6, lines 52-56). Fortune does not explicitly teach a main lobe and a side lobe in an antenna. However, it is notoriously well known in the art that a main lobe and a side lobe is part of a conventional directional antenna (see Electronic Communications Systems by William Stanley, Chapter 11, page 513, copyright 1982). Therefore, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to have a different type of antenna disclosed by Fortune as a directional antenna having a main lobe and side lobe to allow room in the main lobe for the signals having more intense radiation patterns.

in order to receive the maximum radiation achievable by taking into account a lossy environment in which multipath occurs which reduce the antenna's radiation intensity.

Regarding claim 19, Fortune et al and Hayashikura et al disclose the millimeter band signal transmitting/ receiving system of claim 18, wherein at least a portion of the plurality of propagation paths are formed by at least one reflector 216 (fig. 2).

Regarding claim 20, Fortune et al and Hayashikura et al disclose the millimeter band signal transmitting/ receiving system of claim 19, wherein Fortune et al further discloses the at least one reflector 216 has a surface arranged substantially parallel to the direct path 217 (fig. 2).

Regarding claim 21, Fortune et al and Hayashikura et al disclose the millimeter band signal transmitting/ receiving system of claim 19, wherein Fortune et al further discloses the at least one reflector includes two reflectors (col 6, lines 8-11).

Regarding claim 22, Fortune et al and Hayashikura et al disclose the millimeter band signal transmitting/ receiving system of claim 21, wherein Fortune et al further discloses at least one of the plurality of propagation paths of the signal is formed by reflection from each of the two reflectors (col 6, lines 8-11).

Regarding claim 23, Fortune et al and Hayashikura et al disclose the millimeter band signal transmitting/ receiving system of claim 18, wherein Fortune et al further discloses the at least one transmitter is a single transmitter (col 6, line 67-68).

Regarding claim 28, Fortune et al and Hayashikura et al disclose the millimeter band signal transmitting/ receiving system of claim 18, wherein they didn't further specifically disclose the line of sight propagation path between the associated transmit antenna and the receive antenna is formed in a side lobe of the associated transmit antenna. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an antenna's main lobe and side lobe in Fortune's receiving antenna, which is intended to receive the direct and indirect paths and to in order to receive the maximum radiation achievable by taking into account a lossy environment in which multipath occurs which reduce the antenna's radiation intensity wherein different types of antennas can be used to calculate path losses (col 6, lines 52-56). Fortune does not explicitly teach a main lobe and a side lobe in an antenna. However, it is notoriously well known in the art that a main lobe and a side lobe is part of a conventional directional antenna (see Electronic Communications Systems by William Stanley, Chapter 11, page 513, copyright 1982). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a different type of antenna disclosed by Fortune as a directional antenna having a main lobe and side lobe to allow room in the main lobe for the signals having more intense radiation patterns.

Regarding claim 29, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/receiving system of claim 18, wherein they didn't further disclose the plurality of propagation paths of the signal except the line of sight propagation path are formed in a main lobe of the associated transmit antenna. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an antenna's main lobe in Fortune's receiving antenna, wherein different types of antennas can be used to calculate path losses (Fortune; col 6, lines 52-56). Fortune does not explicitly teach a main lobe and a side lobe in an antenna. However, it is notoriously well known in the art that a main lobe and a side lobe is part of a conventional directional antenna (see Electronic Communications Systems by William Stanley, Chapter 11, page 513, copyright 1982). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a different type of antenna disclosed by Fortune as a directional antenna having a main lobe and side lobe to allow room in the main lobe for the signals having more intense radiation patterns.

Regarding claim 30, Fortune et al and Hayashikura et al disclose the millimeter band signal transmitting/ receiving system of claim 18, wherein Fortune et al further discloses a portion of the plurality of propagation paths are formed by interaction with a structural component 216 of a building 102 (fig. 2).

Regarding claim 31, Fortune et al and Hayashikura et al disclose the millimeter band signal transmitting/receiving system of claim 18, wherein Fortune et al further discloses the receive antenna is a single receive antenna 215.

Regarding claim 32, Fortune et al and Hayashikura et al disclose the millimeter band signal transmitting/receiving system of claim 18, wherein Fortune et al further discloses the receiver simultaneously receives the signal through each of an unobstructed direct plurality of propagation paths 217 (col 5, lines 46-47).

Regarding claim 33, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/ receiving system of claim 1, wherein Fortune et al further discloses the receiver 212 receives the signal wave through the line of sight propagation path 217 when the line of sight propagation path is not blocked when it does not pass through a surface (col 5, lines 45-48).

Regarding claim 34, Fortune et al and Hayashikura et al disclose the millimeter band signal transmitting/receiving system of claim 1, wherein al Fortune et al further discloses the receiver receives the signal wave only through the at least one indirect path when the line of sight propagation path is blocked (col 5, lines 64 – col 6, line 7).

Regarding claim 35, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/ receiving system of claim 11, wherein Fortune et al further discloses the receiver 212 receives one of the plurality of signal waves through at least one line of sight propagation path 217 between at least one of the plurality of transmitters and the receiver (col 6, lines 39-67; fig. 2).

Regarding claim 36, Fortune et al and Hayashikura et al disclose the house provided with a millimeter band signal transmitting/receiving system of claim 15, wherein Fortune et al further discloses the receiver at receiver point 212 receives one of

the plurality of signal waves through the line of sight 217 propagation path when the line of sight propagation path is not blocked (col 5, lines 62-63).

Regarding claim 37, Fortune et al and Hayashikura et al further disclose the millimeter band signal transmitting/ receiving system of claim 15, wherein Fortune et al further discloses the receiver only receives the plurality of signal waves through the at least one indirect propagation path from when the line of sight propagation path is blocked (col 5, lines 64-65; col 6, lines 6-7).

Regarding claim 38, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/ receiving system of claim 1, wherein they didn't specifically disclose the at least one indirect propagation path is formed in a main lobe of a transmit antenna. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an antenna's main lobe in Fortune's receiving antenna, which is intended to receive one of multipath signals and to ensure antenna gains as stated in the specification page 9, lines 5-9 and page 12, lines 19-24 as disclosed by Fortune's calculated total reflection path losses being scaled based on the Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an antenna's main lobe and side lobe in Fortune's receiving antenna, wherein different types of antennas can be used to calculate path losses (Fortune; col 6, lines 52-56). Fortune does not explicitly teach a main lobe and a side lobe in an antenna. However, it is notoriously well known in the art that a main lobe and a side lobe is part of a conventional directional antenna (see Electronic Communications Systems by William Stanley, Chapter 11, page 513, copyright 1982).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a different type of antenna disclosed by Fortune as a directional antenna having a main lobe and side lobe to allow room in the main lobe for the signals having more intense radiation patterns.

Regarding claim 39, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/ receiving system of claim 1, wherein they didn't further discloses the line of sight propagation path is formed in a side lobe of a transmit antenna. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an antenna's side lobe in Fortune's receiving antenna, wherein different types of antennas can be used to calculate path losses (Fortune; col 6, lines 52-56). Fortune does not explicitly teach a main lobe and a side lobe in an antenna. However, it is notoriously well known in the art that a main lobe and a side lobe is part of a conventional directional antenna (see Electronic Communications Systems by William Stanley, Chapter 11, page 513, copyright 1982). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a different type of antenna disclosed by Fortune as a directional antenna having a main lobe and side lobe to allow room in the main lobe for the signals having more intense radiation patterns.

Regarding claim 40, Fortune et al and Hayashikura et al disclose the millimeter band signal transmitting/ receiving system of claim 15, wherein they didn't further discloses the line of sight propagation path is formed in a side lobe of a transmit antenna. However, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have an antenna's side lobe in Fortune's receiving antenna, which is intended to receive one of multipath signals wherein different types of antennas can be used to calculate path losses (col 6, lines 52-56). Fortune does not explicitly teach a main lobe and a side lobe in an antenna. However, it is notoriously well known in the art that a main lobe and a side lobe is part of a conventional directional antenna (see Electronic Communications Systems by William Stanley, Chapter 11, page 513, copyright 1982). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a different type of antenna disclosed by Fortune as a directional antenna having a main lobe and side lobe to allow room in the main lobe for the signals having more intense radiation patterns.

2. Claims 12-13, 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fortune et al (US 5,450,615) in view of Hayashikura et al (5,654,715) and further in view of Kagami et al (US 5,479,443).

Regarding claim 12, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/receiving system according to claim 11, wherein they didn't further disclose wherein each of the plurality of transmitters includes a local oscillator oscillating at a prescribed local oscillator frequency for generating the signal wave at the same frequency. Kagami further discloses wherein each of the plurality of transmitters includes a local oscillator oscillating at a prescribed local oscillator frequency for generating the signal wave at the same frequency (col 9, lines 25-36). It would have been obvious to one of ordinary skill in the art at the time the invention was made for

two transmitters to have a common frequency via a common local oscillator in order to convert the reference frequency to the desired frequency band signal.

Regarding claim 13, Fortune et al, Hayashikura et al, and Kagami et al disclose the millimeter band signal transmitting/receiving system according to claim 12, wherein Kagami further discloses the local oscillators are in synchronization with each other.

Regarding claim 24, Fortune et al and Hayashikura et al disclose the millimeter band signal transmitting/ receiving system of claim 18, Fortune et al and Hayashikura et al didn't further disclose wherein the at least one transmitter includes two transmitters and two associated transmit antennas, wherein each of the two associated transmit antennas provides a separate line of sight propagation path to the receive antenna. Kagami et al further discloses wherein the at least one transmitter includes two transmitters and two associated transmit antennas, wherein each of the two associated transmit antennas provides a separate line of sight propagation path to the receive antenna (col 9, lines 37-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the one transmitter includes two transmitters in order to assure that the signal can be transmitted via diversity transmission.

Regarding claim 25, Fortune et al, Hayashikura et al, and Kagami et al disclose the millimeter band signal transmitting/receiving system of claim 24, wherein Kagami further discloses the two transmitters are further synchronized with each other (col 9, lines 37-48).

Regarding claim 26, Fortune et al, Hayashikura et al, and Kagami et al disclose the millimeter band signal transmitting/ receiving system of claim 25, wherein Kagami et al further discloses the two transmitters share a common local oscillator (col 9, lines 37-48).

3. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fortune et al in view of Hayashikura et al (US 5,654,715) as applied to claim 18 above, and further in view of Evans et al (US 5,920,813).

Regarding claim 27, Fortune et al and Hayashikura et al discloses the millimeter band signal transmitting/ receiving system of claim 18, wherein they didn't further disclose the signal is a video signal. Evans et al further discloses the signal is a video signal (col 4, lines 65- col 5, line 2; col 8, lines 13-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the video signals in order to apply the higher microwave frequencies to practical use.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lana N Le whose telephone number is (703) 308-5836. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F Urban can be reached on (703) 305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Lana Le

September 6, 2004